



Application of Technology Acceptance Model (TAM) to The Use of 3D Digital Design (Case Study Fashion Design Results of 2 Fashion Design Students at Jakarta State University)

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Abstract

This study aims to determine the acceptance of users, in this case, students majoring in Fashion Education at Jakarta State University, to the 3D Digital Design application, which is used in making the final project of the Fashion Design 2 course. The respondents in this study were Fashion Design Education students who had taken the Applied Computer and Fashion Design 2 courses. This study used quantitative research methods with quantitative descriptive data analysis techniques. The result of this study showed that media and technology could increase productivity, performance, and process efficiency in making 3D fashion designs for students.

Keywords: *Technology Acceptance Model (TAM), Clo 3D, Digital Design, UNJ*

INTRODUCTION

Nowadays the world of fashion has been combined with technology, from the manufacturing process to marketing. This seems to be effective in advancing the design process for clothing designers. One of the technologies that is currently becoming a close part of a designer is 3D fashion design applications or software. Being a designer is required to understand design science (Asmayanti et al., 2020). A designer is not only capable of designing but must also understand how to sew, equipped with basic knowledge of clothing. A designer must be able to produce valuable work, both in terms of function and also in terms of beauty. To produce this combination, technology has created an app that can support designers in presenting their work in the visual world yet look real.

In the world of education related to the field of design, of course, must keep up with the times by providing and instilling knowledge about design using technology, (Huda et al., 2021). The definition of

application in the world of education is a process of interaction between students and educators and learning resources in a learning environment that includes teachers and students exchanging information (Mubai et al., 2021; Uno, 2012). This has happened in Fashion Design Education, at Jakarta State University. Students are expected to be able to create fashion designs not only proficient in manual, two-dimensional (2D) design but now developing must also master three-dimensional (3D) design. Thus, to see the efficiency, effectiveness, and usability factors of this media, researchers will look through the Technology Acceptance Model (TAM) method. To analyze and understand the factors that have an impact on the acceptance of the use of technology TAM model.

The focus of the analysis of this study is on user experience in the use of technology. User experience in operating technology will affect user perception of the technology. Then the reputation of the technology obtained by users is the second factor. The results of using

positive technology will have a good reputation as well, (Hartanto et al., 2022; Tasrif et al., 2019). This will increase user confidence in the ease of use of technology, and vice versa. The ease of use of technology is the third factor that affects user perception, the convenience is partly due to the availability of reliable support mechanisms. Technology, in this case, is a 3D virtual design under the CLO.

Technology Acceptance Model (Tam)

TAM was first proposed by Fred D. Davis in 1986 through his doctoral dissertation at MIT Sloan School of Management, Cambridge. Davis developed this model based on the Theory of Reasoned Action (TRA) model, introduced in 1980 by Icek Ajzen and Martin Fishbein (Davis, 1989).

Application is an action or implementation of a plan that is prepared carefully and in detail in carrying out the learning process (Nurdin & Usman, 2011). The Technology Acceptance Model (TAM) is a model that can be used to analyze the factors that affect the acceptance of an information system. This model was first introduced by Fred Davis in 1986. The Technology Acceptance Model (TAM) is one of the models built to analyze and understand the factors that influence the acceptance of the use of computer technology.

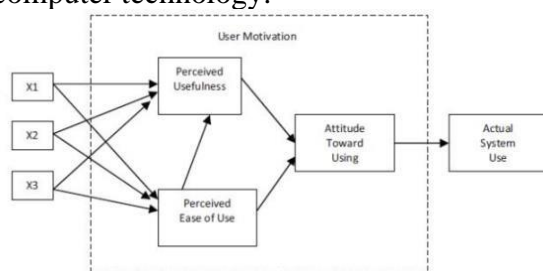


Figure 1 Original model of TAM

The technology acceptance model has incorporated a user attitude towards what is done. Davis (1989) have developed a model that explains individual behavior in receiving information technology called TAM. TAM has successfully predicted and explained almost equal behavioral intention to adopt a new technology among inexperienced and experienced users (Alharbi & Drew, 2014). This model is developed from psychological theories related to user behavior ranging from

beliefs, attitudes, intentions, and relationships of user behavior. The behavioral attitude of each user has two variables, namely ease of use and usability.

An explanation of user perception will determine his attitude toward using information technology and describe more clearly the use of information technology that is influenced by usability and ease of use. There are 4 constructs used in TAM research, namely: Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, and Actual Usage. In (Jogiyant, 2007) the Technology Acceptance Model (TAM) theory has several advantages, namely:

- a. TAM is a behavioral model that has the benefit of answering the question of why many information technology systems fail to be implemented because the users do not have the interest to use them.
- b. TAM is a parsimonious model, namely a simple but valid model.
- c. TAM is built on a strong theoretical basis.
- d. TAM is widely used in research with the results of which conclude that TAM is a good model

RESEARCH METHODS

The population in question is students of the Fashion Design Study Program at the State University of Jakarta. The sample in this study is students who have taken applied computer design courses with 3D digital design CLO material. Researchers use methodology from the Technology Acceptance Model (TAM) theory developed by (Davis, 1989).

RESULTS AND DISCUSSION

Data was obtained from 80 respondents from D4 Fashion Design students' batch 2020 and 2021 who had taken the Fashion Design 2 course. Statement items have been tested for validity and reliability following the research indicators that have been determined based on the theory used. Tabulating data or respondents' answers is then processed with a simple statistical approach and summary.

Table 1. Distribution of respondents by gender

Gender	Frequenc	Percent
Female	75	96.2
Male	3	3.8
Total	78	100

Based on Table 1, the largest distribution of respondents is based on gender, namely as many as 75 female samples (96.2%) and 3 male samples (3.8%).

Table 2. Distribution of respondents

No	Year	Frequenc y	Percent
1	2020	45	57.7
2	2021	33	42.3
Total		78	100

Based on the table, the largest distribution of respondents by class was 45 samples of fashion design students in batch 2 class of 2020 (57.7%) and 33 samples of fashion design students in batch 2 class of 2021.

3.1 Perceived Ease of Use

Perceived Ease of Use in technology is defined as a measure of a person's trust in a computer that is easy to understand and use (Davis, 1989). This explanation is supported by (Wibowo, 2012) who explains that a perception of ease of use of technology is defined as a measure of where someone believes that the technology is easy to understand and easy to use. In this study, the perceived ease of use indicator was respondents who found it easy to use 3D CLO software.

In the perceived ease of use indicator, respondents get a lot of convenience with the development of 3D CLO technology in fashion design courses. This is reinforced by an open statement with respondents' answers saying that 3D CLO helps them in making designs because it can visualize realistic designs, has features that are easy to understand or learn, is easy to revise, and is also flexible in use.

3.2 Perceived Usability

Perceived usefulness is a measure by which the use of a technology is believed to bring benefits to those who use it. This is expected to improve performance. In this study, perceived usefulness indicators were respondents who benefited from the use of 3D CLO software.

Respondents considered that 3D CLO technology is believed to be able to bring good benefits because of visual results that can produce realistic designs, efficiency, and effectiveness in terms of time and cost. In addition, the many features in 3D CLO can develop creativity in designing a dress. This is reinforced by an open statement where the results of respondents' answers mention that many features can develop creativity ranging from making patterns to the stage for virtual fashion shows.

3.3 Attitude Towards Use

Attitudes toward use in TAM are conceptualized as attitudes toward the use of a system in the form of acceptance or rejection as an impact when a person uses technology in his work (Davis, 1989). In this case, the attitude of one's acceptance of information technology. In this study, the Attitude Toward Using indicator is a form of respondents' attitude towards 3D CLO software.

Fashion design students receive Clo 3D software as a technology that can help in creating fashion design works in line with current developments. This is reinforced by respondents' answers to open statements that 3D CLO Software follows technological developments that can be used as a medium or design learning method because it makes it easier to be creative and realize the desired fashion design, minimizes errors during production, reduces waste and reduces

production sample waste, and helps study and work. According to respondents, if you already understand the tools available in 3D CLO, working on designs using 3D CLO becomes easier when compared to conventional methods (manual). The results in this study also showed that respondents were happy to use Clo 3D software and satisfied with the results made.

3.4 Actual Use Technology

Actual use is the real behavior in adopting a system. Actual system use is defined as a form of external psychomotor response measured by a person with real use (Davis, 1989). Usefulness is the level to which a person believes that the use of a particular technology will improve that person's performance. An individual who finds it easy to use an item or product will feel more usefulness from that item or product. The connection in this research is that a user of the 3D CLO software who finds it easy to operate the software will increasingly feel the usefulness of the Clo 3D software (Triningsih, 2004). In this study, the actual usage indicator was respondents who used 3D CLO software repeatedly and continuously.

In this study, the use of 3D CLO software brought benefits in creating real fashion designs. However, of all respondents, the frequency of using 3D CLO software depends on the needs of each respondent. This is reinforced by answers to open statements about how often respondents use the software. Some answer often because of tangible results and assistance in their work, and some others rarely use it or only use it in courses that require

3D design or other factors such as the limitations of the device the respondent has. Creating one of the fashion designs in 3D CLO software takes 1-2 hours, while for clothes that are very complicated and detailed, it can take days depending on the level of

difficulty of the design you want to make. In conclusion, we can find out that media and technology can increase productivity, performance, and process efficiency in making 3D fashion designs by students on the Perceived Ease of Use indicator.

Respondents get a lot of convenience with the development of 3D CLO technology in fashion design courses so that the use of 3D CLO can continue to be used in subsequent years. In the Perceived Usefulness indicator, respondents assessed that 3D CLO technology is believed to be able to bring good benefits because the visual results are capable of producing realistic designs, even efficiency and effectiveness in terms of time and cost. Unfortunately, 3D CLO is a premium application. In the Attitude Toward using a table, respondents in the fashion design course 2 accept 3D CLO software as a technology that can help in creating fashion design works that adapt to current developments. This makes it easier to make prototypes thereby minimizing fabric waste. In the Actual Use table, using 3D CLO software brings benefits in creating real fashion designs. However, for all respondents, the frequency of using 3D CLO software depends on the needs of each respondent.

CONCLUSION

This study succeeded in knowing the acceptance of students majoring in Fashion Cosmetology Education at the State University of Jakarta towards the 3D Digital Design application used in making the final project of the course. The results of this study indicate that media and technology can increase productivity, performance, and process efficiency in making 3D fashion designs for students. In the future, the 3D Digital Design application will continue to be used and recommended in courses related to fashion.

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